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10/565,352	06/14/2006	Wei Zhu	20296-002US1 OP050050	2233

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EXAMINER	
ABDALLA, KHALID M	
ART UNIT	PAPER NUMBER
2419	

NOTIFICATION DATE	DELIVERY MODE
07/08/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/565,352	ZHU ET AL.	
	Examiner	Art Unit	
	KHALID ABDALLA	2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/19/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Respond to Amendment

1. This communication is considered fully response to the Amendment filed on 03/10/2009. The following is the new ground rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyer et al (US 20030133412) in view of Weinstein et al (US 20020191572) hereinafter referred to as Lyer and Weinstein respectively.

Regarding claim1 Lyer et al discloses A Multi-Protocol Label Switch (MPLS) (FIG. 4 illustrates a network of multiprotocol label switched)

processing method of applied in a multi-port Virtual Local Area Network (VLAN) (Fig. 2 (b) shows a virtual local area network in and switch S1 40 with its multiports) wherein the VLAN includes a node with a MPLS table item managing module and the method comprises steps of:

establishing a label switch path (LSP) (MPLS-enabled routers and LSP are connected to the VLANs see [0023]), by the node in the multi-port V.LAN, through a label distribution protocol (LDP) (The LSP is established by the distribution of the MPLS

labels. A label distribution protocol (LDP) or any other signaling protocol may be used in establishing the LSP see [0035] lines 10-12)

and obtaining information binding a forwarding equivalence class (FEC) (assigning equivalence class see [0033]) and a label or information binding an ingress label and an egress label, and an address of a LDP (The LSP is established by the distribution of the MPLS labels. A label distribution protocol (LDP) or any other signaling protocol may be used in establishing the LSP see [0035] lines 10-12) peer entity at an opposite end, which is a next-hop IP address (The LSP may be established by "hop-by-hop" routing, where each router successively selects the next hop for the packets based upon a variety of factors see [0034] lines 5-8)

creating, by the MPLS table item (FIG. 5 illustrates the creation of a label-switched path (LSP) on the global network according to an embodiment of the present invention. If "hop-by-hop" routing is used and R2 44 is chosen as the next router, then R1 42 initiates a label request through R2 44. The request continues through the network to the egress router, e.g., from R2 44 to R3 46 to R4 48. Each intermediary router may receive a MPLS label from its downstream router: R3 46 receives a MPLS label from R4 48 and R1 42 receives a MPLS label from R2 44.The LSP is established by the distribution of the MPLS labels see [0035] lines 1-11) managing module, forwarding-relation table and adding a forwarding-relation table item based upon the obtained information

address; and accomplishing, by the node in the multi-port VLAN, the MPLS via the specific egress port (R1 42 investigates the packet's destination IP address and

determines that the destination IP address is located on the enterprise LAN connected to R1 42 by LAN switch S1 40 and transmits the packet to S1 40 see [0053] lines 8-11) Lyer et al does not explicitly disclose obtaining, by the MPLS table item managing module, a specific egress port corresponding to the forwarding-relation table item based upon the next-hop IP. Weinstein et al from the same or similar endeavor teach (The incoming label is then replaced with the outgoing label in the MPLS packet and the packet is sent out to the outgoing interface. This process is repeated until the packet reaches the egress router where the MPLS label is stripped off the packet and the packet is forwarded through regular layer 3 forwarding. For label mapping purposes, Next Hop Label Forwarding Entries (NHLFE) are used at the LSRs see [0066] lines 30-37). Thus it would have been obvious to one of ordinary skill in the art to implement the method of Weinstein et al in the system of Lyer et al the method of Lyer et al can be implemented on any type of method obtaining, by the MPLS table item managing module, a specific egress port corresponding to the forwarding-relation table item based upon the next-hop IP which is taught by Weinstein et al with a motivation to provide efficient operation and quality for publicly accessed wireless local area network

Regarding claim 2, note that Lyer discloses the method, wherein the step of the MPLS table item managing module (MPLS-enabled touters and LSP are connected to the VLANs see [0023]) creating the forwarding-relation table and adding the forwarding-relation table (Each subsequent router examines the port label of the received packet and replaces it with the outgoing label and forwards it see [0037]).

Also not that Weinstein teaches a forwarding-relation table item of FTN for a label edge

router (LER) in the VLAN, which indicates a mapping of a forwarding equivalence class (FEC) to a next-hop label forwarding entry (NHLFE) (an FEC-To-NHLFE (FTN) map is used for label creation. At each intermediate LSR, an Incoming Label Map (ILM) converts incoming labels into corresponding NHLFEs to converts the MPLS packets accordingly see [0066]); and creating an forwarding-relation table item of Incoming Label Map (ILM) for a label switch router (LSR) in the VLAN, wherein the forwarding-relation table item of ILM (Incoming Label Map (ILM) converts incoming labels into corresponding NHLFEs to converts the MPLS packets accordingly see [0066])indicates a mapping of an input label to the NHLFE.

Regarding claim 3, note that Lyer modified by Weinstein teaches the method, wherein the step of obtaining the egress port (Weinstein: forwarded within the domain by using the label at the egress point see[0067]) corresponding to the forwarding-relation table item based upon the next-hop IP address (Weinstein: next hop label forwarding entries (NHLFE) see [0066]) further comprises steps of: the MPLS table item managing module (Lyer: MPLS-enabled touters and LSP are connected to the VLANs see [0023]) searching an address resolution protocol (ARP) table based upon the next-hop IP address to judge whether there is a corresponding table item of ARP(Lyer address resolution protocol see [0042]); if there is a corresponding table item of ARP, establishing a correspondence relation of the forwarding-relation table item and a corresponding egress port and physical MAC address in the table item of ARP based upon information of the corresponding egress port and MAC address (Lyer packets arrival with IP destination address see [0042] also see [0038]) ; and if there is no

corresponding table item of ARP, marking the forwarding-relation table item with an UNAVAILABLE sign (Lyer : not directly on the network see [0041]), and obtaining information of the egress port with a data flow which triggers a corresponding action based upon an actual data flow (Weinstein: forwarded within the domain by using the label at the egress point see[0067]).

Regarding claim 4, note that Lyer modified by Weinstein teaches the method wherein the step of obtaining the information of the egress port (Weinstein I forwarded within the domain by using the label at the egress point see [0067]).

with the data flow if there is no corresponding table item of ARP. and further comprises the steps of: transmitting an ARP (Lyer : address resolution protocol see [0042]) broadcast request in the VLAN based upon the next-hop IP address(Weinstein: next hop label forwarding entries (NHLFE) see [0066]) and an egress interface VLAN receiving an ARP response message sent from the opposite end; relearning and obtaining the egress port and MAC address (Lyer: physical address see [0042] corresponding to the next-hop IP address based upon the received ARP(Lyer : address resolution protocol see [0042]) response message sent from the opposite end, and a maintaining and managing module of the VLAN notifying the MPLS table item managing module to update the information of the egress port corresponding to the forwarding-relation table item based upon the received ARP (Lyer: address resolution protocol see [0042]).

Regarding claim 5, note that Lyer discloses the method wherein

further comprising steps of: the MPLS table item managing module distributing the

relevant forwarding-relation table (each subsequent router examines the port label of the received packet and replaces it with the outgoing label and forwards it see [0037]). item to the maintaining and managing module to create the forwarding-relation table maintained by the maintaining and managing module (MPLS-enabled touters and LSP are connected to the VLANs see [0023]) also see Each subsequent router examines the port label of the received packet and replaces it with the outgoing label and forwards it see [0037]).

Also note that Weinstein teaches the maintaining and managing module maintaining a correspondence relation of the next-hop IP address (next hop label forwarding entries (NHLFE) see [0066] and the forwarding-relation table item.

Regarding claim 6, note that Lyer discloses the method, wherein the step of the MPLS table item managing module distributing the relevant forwarding-relation table item to the maintaining and managing module (Lyer: MPLS-enabled touters and LSP are connected to the VLANs see [0023] also see Each subsequent router examines the port label of the received packet and replaces it with the outgoing label and forwards it see [0037] AND [0026]).

further comprises steps of:

for the LER in the VLAN (LER on the VLAN see [0026[, the MPLS table item managing module sending the information of the forwarding-relation table(Each subsequent router examines the port label of the received packet and replaces it with the outgoing label and forwards it see [0037]); item of FTN to the maintaining and managing module

Also note that Weinstein teaches the MPLS table item managing module sending the information of the forwarding-relation table item of ILM (Incoming Label Map (ILM) converts incoming labels into corresponding NHLFEs to converts the MPLS packets accordingly see [0066]) to the maintaining and managing module.

Regarding claim7,note that Lyer modified by Weinstein teaches the method, wherein the step of the maintaining and managing module (Lyer: MPLS-enabled touters and LSP are connected to the VLANs see [0023]) maintaining the correspondence relation of the next-hop IP address (Weinstein: next hop label forwarding entries (NHLFE) see [0066]) and the forwarding-relation table (Lyer: Each subsequent router examines the port label of the received packet and replaces it with the outgoing label and forwards it see [0037]) item further comprises steps of: when an ARP is deleted, the maintaining and managing module notifying the MPLS table item managing module to update the forwarding-relation table item related to the ARP (Lyer: address resolution protocol see [0042] and setting an INVALID (not on network see [0041]) and (Lyer: address resolution protocol see [0042]) flag bit for the forwarding-relation table item related to the ARP.

Regarding claim 8, note that Lyer discloses the method ,wherein the step of setting the INVALID (not on network see [0041] and (address resolution protocol see [0042])flag bit for the forwarding-relation table item related to the ARP(address resolution protocol see [0042]) further comprises steps of: in a distributed forwarding system, notifying micro-codes to set the INVALID (not on network see [0041] and (address resolution protocol see [0042])

flag bit for the forwarding-relation table item in the micro-codes (program constructs a VLAN-ID table in LAN switch see[0044]) which is related to the ARP; and in a non-distributed forwarding system, the MPLS table item managing module setting the INVALID flag bit for the forwarding-relation table item which is related to the ARP (address resolution protocol see [0042]).

Regarding claim9,note that Lyer modified by Weinstein teaches, wherein the step of the maintaining and managing module maintaining the correspondence relation of the next-hop IP address (Weinstein next hop label forwarding entries (NHLFE) see [0066]) and the forwarding-relation table item further comprises steps of: when an ARP is newly created, the maintaining and managing module searching the forwarding-relation table maintained by itself as to whether there is a table item related to the ARP(Lyer: address resolution protocol see [0042]).; if not, no process being performed, otherwise judging whether a new egress port (Lyer new egress router pass the labels on the packets see [0051])is consistent with the egress port corresponding to the original forwarding-relation table item; and if consistent, maintaining the original forwarding-relation table item, otherwise notifying the MPLS table item managing module to update the information of the egress port corresponding to the forwarding-relation table item (Weinstein forwarded within the domain by using the label at the egress point see[0067]).

Regarding claim 10, Lyer discloses The method, wherein in a distributed forwarding system, the method further comprises a step of converting the forwarding-relation table item created by the MPLS table item managing module (MPLS-enabled touters and

LSP are connected to the VLANs see [0023] also see Each subsequent router examines the port label of the received packet and replaces it with the outgoing label and forwards it see [0037]). into a format required by micro-codes and distributing the forwarding-relation table item to the micro-codes (program constructs a VLAN-ID table in LAN switch see [0044]).

Respond to Remarks /Arguments

4. Claim Rejection: Applicant arguments filed on 03/10/2009 have been fully considered but they are not persuasive regarding 35 U.S.C. 103(a) Rejection.

On claim 1, *35 USC § 101* Rejection has been withdrawal**.** On claim 1, applicant assert that Weinstein et al. application does not disclose ''……a specific egress port corresponding to the forwarding-relation table item based upon the next-hop IP. Weinstein et al disclose the limitation and it does for the deficiency in Lyer et al see [0066] lines 22-37 and FIG. 6 (At any LSR, incoming traffic belonging to the same FEC will be treated equally, i.e., sent out to the same interface with the same label. At the ingress router, a packet is assigned a label according to the FEC to which it belongs. When a labeled packet arrives at an intermediate router along an LSP, a process called label swapping is performed: The label in the packet is first extracted and the pair of (incoming port, incoming label) is map into a pair of (outgoing port, outgoing label). The incoming label is then replaced with the outgoing label in the MPLS packet and the packet is sent out to the outgoing interface. This process is repeated until the packet

reaches the egress router where the MPLS label is stripped off the packet and the packet is forwarded through regular layer 3 forwarding. For label mapping purposes, Next Hop Label Forwarding Entries (NHLFE) are used at the LSRs .
Based on fact, Examiner respectfully disagrees the prior art recited does not teach and compensate for deficiencies in the primary reference.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHALID ABDALLA whose telephone number is (571)270-7526. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dang Ton can be reached on 571-272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. A./
Examiner, Art Unit 2419

/Robert W Wilson/
Primary Examiner, Art Unit 2419